in time, through the action of superstition and myth, with a religious garb, and thus the marriage system would come under their influence. The theory seems to me very nearly, if not quite, to solve the mystery of totemism. There is also some good criticism of recent views, such as the origin of totemism from the "external soul," or from magical cooperative societies for the control of food.

The value of the book is increased by a clear exposition and sane criticism of the chief theories and suggestions which have been put forward in the study of totemism, exogamy, and primitive marriage.

ERNEST CRAWLEY.

OUR BOOK SHELF.

Immune Sera. Haemolysins, Cytotoxins, and Precipitins. By Prof. A. Wassermann, M.D. Translated by Charles Bolduan, M.D. Pp. ix+77. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1904.)

THE subject of immune sera has not in this country received as much attention from the medical profession as its importance and interest deserve. This is not so much due to the inherent difficulties of the subject as to the complicated way in which it has usually been expounded, and to the fact that the nomenclature introduced by different authors and experimenters has been found bewildering. The difficulties have been increased by the introduction by various experimenters of different terms for the same entities, and often ones which suggest the function or properties of the substance, according to the inventor's particular views.

This neglect is the more to be regretted, as investigations upon hæmolysins, cytotoxins, and precipitins which at first seemed to possess merely scientific interest, have become of the greatest importance, owing to the close analogy which has been found to obtain between these phenomena and those of natural and acquired immunity. These studies have indeed occupied an important and striking position in the development of our knowledge of the mechanisms whereby an animal protects itself, or is protected, against the invasion of the micro-organisms of infectious diseases.

This little book of seventy-five pages is an English translation of one of the "Clinical Lecture" series, edited by von Bergman. The treatment of the subject is intended for medical men generally, and is not addressed to specialists. That Prof. Wassermann is the author is sufficient guarantee that the matter has been judiciously selected, and the manner in which it is presented could hardly be improved upon, so that it forms a clear and interesting account of the subject. The main facts and principal conclusions, including a brief but adequate *résumé* of Ehrlich's development of his side-chain theory to apply to anti-bodies in general, are given, but all unnecessary controversial matter is omitted. At the end is a very select bibliography, to which the reader is from time to time referred for fuller information.

The translation is excellent, and we confidently recommend this little book to the attention of all medical men, or others, desirous of acquainting themselves with the essential and most significant facts on the subject of immune sera.

CHARLES J. MARTIN.

The Flora of the Parish of Halifax. By W. B. Crump and C. Crossland. Pp. lxxiv+316. (Halifax Scientific Society, 1904.) Price 10*s.* 6*d.* net.

THE question arises, Why should the records of a parish be amplified into a book containing 300 odd pages? in reply to which the authors explain at the outset that the parish of Halifax covers 129 square miles, and corresponds to a natural geographical division, through which flows the River Calder. But although the area is circumscribed and the vertical range is not great—the altitude varies between 500 and 1500 feet—the number of plants found within the district forms a good list, which has been worked up into an attractive historical and ecological account, and in addition, owing to the cooperation of other workers, it has been possible to include lists of all the cryptogamic plants. Looking at the plant associations, the mixed deciduous woods are the habitat of the globe-flower, the bird's nest orchid, the helleborine and the daffodil, while among the rare species of the heather moors are reckoned the bog-bell, the winter greens, and the bear berry. The bryologist, too, will find a good hunting ground, for, in addition to a fairly rich flora, the parish has yielded a new variety of Philonotis, the first record in Yorkshire for *Amblystegium Juratzkae,* and one of the few stations in the British Isles for *Jubula Hutchinsiae.* With the botany of Halifax is inseparably bound up the name of John Bolton, painter and naturalist, who in 1785 published "Filices Brittanicæ," with thirty-one copper plates all drawn by himself, and in 1791 completed "An History of Fungusses," also provided with plates, and the extent of his collections can be gauged from the numerous records which are given in the book.

While this "Flora" must naturally prove most useful to those who can traverse the parish, the ecological account and the records will serve for guidance and reference to a larger number of naturalists.

Chemisches Praktikum. By Dr. A. Wolfrum. II. Teil. Präparative und Fabrikatorische Übungen. Pp. xii+580. Price 15*s.* net. Atlas, Part ii. Atlas, price 1*l.* net; together, price 1*l.* 8*s.* net. (Leipzig: Engelmann, 1903.)

WE gather from the preface to the first part that the author's intention in compiling this work was to present the student whose aims lie in the direction of chemical technology with a course of practical exercises especially fitted for his future career. The first volume dealt with analytical work, and here the student is introduced to preparative chemistry.

The first chapter is devoted to a discussion of general matters, such as the treatment of materials for preparative and technical purposes, the general conditions of chemical reaction, and the separation, purification, and testing of reaction products. In the second chapter of 150 pages, the methods of preparation of a large number of inorganic and organic substances are described. Fifteen pages form the third chapter, which deals with the dynamics of chemical reactions, and the last two chapters are devoted to matters of a specially technical nature—descriptions of furnaces, autoclaves, filter-presses, air-pumps, condensers, centrifuges, &c., the fitting up of factories, book-keeping, patent laws, and, finally, exercises in connection with large scale technical processes are given.

Such is the programme arranged by the author for the future works chemist. It must be admitted that in many cases the practical courses provided at the universities and higher technical institutions for such chemical students might be with advantage considerably modified; in most cases the chief difficulty confronting such change is to be found in the greatly increased cost of laboratory equipment and upkeep. Without such equipment it is questionable whether the "Chemisches Praktikum" can be advantageously used by the technical student. The preparations are well chosen, but the working details would have been far more intelligible to the average student if

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occasionally illustrated by diagrams of the apparatus employed.

What benefit the student will be able to derive from the technical chapters can only be decided by experience. The value of these is undoubtedly enhanced by the supplementary album containing some 560 excellent diagrams illustrating technical apparatus and actual manufacturing processes. Amongst other processes illustrated are the manufacture of liquid ammonia, liquid carbonic acid, chlorine, ether, aniline, hydrochloric, nitric, sulphuric, tartaric, citric, and carbolic acids. A careful study of such diagrams cannot but be of great service to all intending works chemists.

The Personality of the Physician. By Dr. Alfred T. Schofield. Pp. x+317. (London: J. and A. Churchill, 1904.) Price 5*s*. net.

As with all the writings of Dr. Schofield, this present work shows indubitable signs of wide reading and of careful thought.

The underlying gist of the matter is that the most potent factor in a physician's success is the personal equation. Of course, by the word "success" Dr. Schofield does not mean what is sometimes profanely styled "scooping in the shekels"! Nor does he fall into the verv common error of confusing *personality* with *prestige*. The latter may, of course, be shared with the physician, who aspires to occupy the most lofty possible pinnacle of moral excellence, by the lowest and most unprincipled charlatan.

Happily, the ethical standard, recognised by the medical profession in this country, is of the highest conceivable type. Nevertheless, any publication that tends to raise, rather than to level down, that ideal is very rightly welcomed alike by the profession, by the Press, and by the people at large.

Some medical men are more comforting than others, and it is quite certain that pessimism more surely empties the consultant's waiting-room than any other quality. If the reviewer, who yields to no man in his admiration of the noblest of all professions, might be for once pardoned for a little private grumble at some of the physicians with whom he has come in contact, it is because of the grudging manner in which certain doctors, otherwise worthy and excellent men, deal out with sparing hand a remedy—Tinctura Spei—which costs them nothing, and yet is probably the most valuable drug ever dispensed!

Rustless Coatings: Corrosion and Electrolysis of Iron and Steel. By M. P. Wood. Pp. x+432. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1904.) Price 17*s*. net.

MR. M. P. WOOD may be a good "practical" man, but he has neither literary ability nor a knowledge of science sufficient to enable him to do justice to a subject which demands much more than rule-of-thumb practice to deal with it adequately. His book is a strange medley of so-called scientific statements strung together without any real acquaintance with their meaning. Its appearance of scientific erudition may serve to deceive the unwary, and we quite agree with Mr. Wood that there is much in paint and in things connected with paint that *is* calculated to deceive the unwary. But then something depends upon the guide. Mr. Wood's book is very prettily got up, and some of the illustrations are in the highest style of process-art. But like much of the subject-matter, many of them are wholly irrelevant. Mr. Wood has evidently had the ambition to make a book on a subject with which as a practical man he has been more or less intimately connected, but in this matter his ambition has overleaped itself.

Ankauf, Einrichtung und Pflege des Motorzweirades. By Wolfgang Vogel. Pp. xiii+144. (Berlin: Phönix-Verlag, 1904.) Price 2.65 marks.

ANYONE who possesses a motor bicycle or tricycle and can read the German language will find in these pages much valuable information in the form of practical suggestions as to the buying, working, and maintenance of these useful means of locomotion. The author deals fully with every part of the machine, and illustrates the text with numerous drawings which should very much assist the novice in understanding the functions of the various parts of the machine. The great improvement in design of motors, and the growing popularity of this form of transport, will no doubt call for many small treatises on the subject, of which the present one is an excellent example.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Origin of Radium.

APROPOS of Mr. Strutt's letter in NATURE of July 7, it may be recalled that the Curies found that the artificially prepared chalcolite (the uranium copper phosphate) contained no radium, whereas the natural substance did.

It appears to me that if this fact is considered along with Mr. Soddy's result as to the failure of uranium nitrate to generate radium, the *prima facie* interpretation would be that the combined copper atom was in some way concerned. Of course the alternative view is still left that it takes a longer time than elapsed in Mr. Soddy's observations for radium to emerge from a succession of changes taking place in the uranium atom, and that this atom is the sole parent. However, in the present state of our knowledge it seems worth investigating if it may not turn out that radium results from the convection of ions from atoms of higher to atoms of lower atomic weight, producing in radium an unstable or overcharged atom.

On these grounds I have recently induced my friend Mr. Emil Werner to prepare about half a kilo. of the uranium mica or chalcolite with the view of testing at intervals its yield of radium emanation, if any is, indeed, generated. Along with this will be observed the pure uranium nitrate as well as an impure uranium nitrate recrystallised with small quantities of some of the heavy metals. My experiments are on rather a small scale. It is desirable, I think, that they should be repeated by some one commanding larger resources. J. JOLY.

Trinity College, Dublin.

Electric Wave Recorder for Strutt's Radium Electroscope.

THE periodical discharges of a Strutt's radium electroscope can be arranged to ring a bell or print a record of every contact of the leaves; each discharge from the outside terminal, when the leaf strikes, is sufficient to act on a coherer, if any part of the coherer circuit is connected by wire, so that the discharge terminal of the vacuum tube takes the place of the aërial, as used in wireless telegraphy; the experiment never fails, every discharge producing a ring on the bell or a dot on the Morse tape as desired. For the coherer I use two pieces of No. 16 German silver wire, with nickel filings in the gap, at ordinary atmospheric pressure.

It is sometimes possible to get the coherer to respond by induction without metallic contact with the terminal, but this is rather beyond the sensibility of the apparatus employed.

I am greatly indebted to Dr. W. H. Martindale for the loan of his Strutt's radium electroscope for use in these

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